Avian Mortality Surveillance: Getting Your Ducks in a Row To Prepare for H5N1

Participant's Guide

Revised March 15, 2006

How to Interact with the Instructor

We encourage you to ask questions and share your comments with the instructors throughout this TELNPS course.

If you were physically in the classroom with the instructor, you would raise your hand to let him know you had a question or comment. Then you would wait for the instructor to recognize you and ask for your question. We are all familiar with that "protocol" for asking questions or making comments.

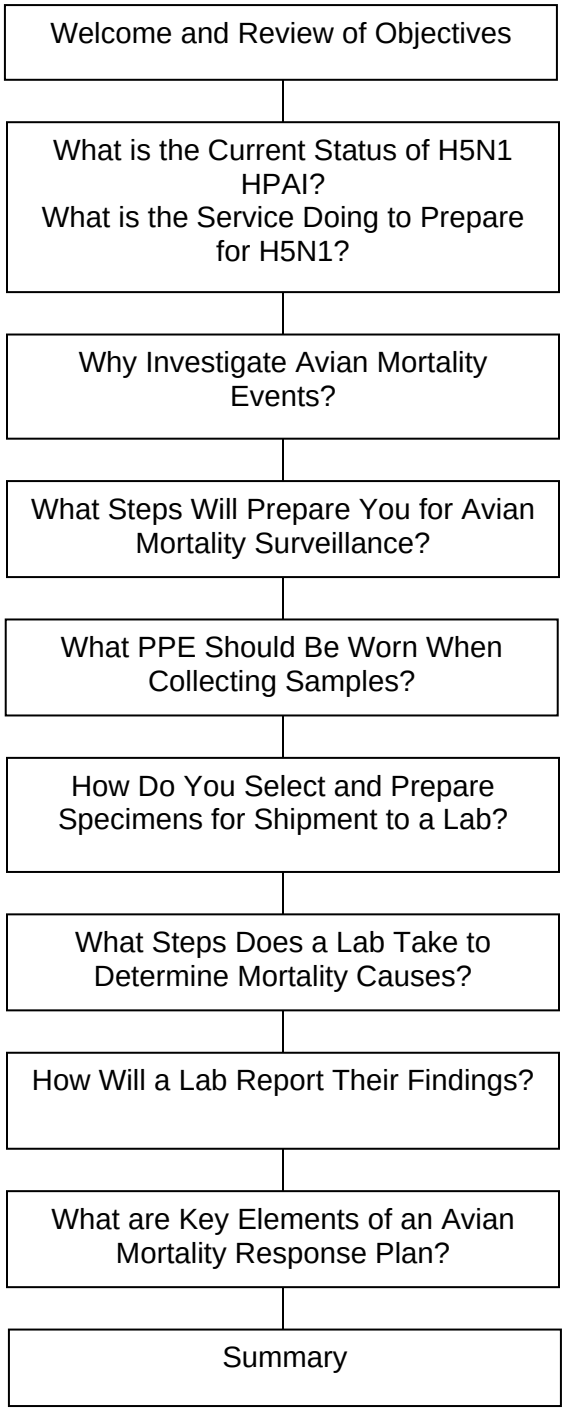
With TELNPS courses there is also a "protocol" to follow to ensure you can easily ask questions and others can participate as well. It may seem a little strange at first asking a question of a TV monitor. Remember, it is the instructor you are interacting with and not the monitor. As you ask more questions and participate in more TELNPS courses, you will soon be focusing only on the content of your question and not the equipment you are using to ask it.

As part of the TEL station equipment at your location, there are several push to talk microphones. Depending on the number of students at your location, you may have one directly in front of you or you may be sharing one with other students at your table.

When you have a question, press the push to talk button and say,
"Excuse me [instructor's first name], this is [your first name]
at [your location]. I have a question (or I have a comment)."
Then release the push to talk button. This is important.
Until you release the button, you will not be able to hear the instructor.

The instructor will acknowledge you and then ask for your question or comment. Stating your name and location not only helps the instructor, but also helps other students who are participating at different locations to get to know their classmates.

Avian Mortality Surveillance: Getting Your Ducks in a Row to Prepare for H5N1 Course Map



Course Objectives

Notes

At the end of this workshop, you should be able to:

1. Describe the current situation with the Highly Pathogenic Asian Avian Influenza Virus H5N1 and what the Service is doing to properly prepare for and respond to the arrival of H5N1 in North America.

2. Explain why it is important to investigate avian morbidity and mortality events.

3. Recognize an unusual mortality event.

4. List the steps that each park/field site should take to prepare for avian mortality surveillance.

5. List the proper Personal Protective Equipment (PPE) to be worn when collecting samples from a mortality event.

6. Demonstrate how to select and properly prepare a specimen for shipping to a diagnostic laboratory.

7. Describe the steps taken at a diagnostic lab to determine the mortality cause.

8. Explain how results will be reported by a diagnostic lab and what actions should be taken while waiting for those results.

9. List the elements that should be contained within an avian mortality response plan.

What is the Current Status of H5N1 HPAI?

What are the influenza virus types?

- Type A
  Primarily infects birds, may infect people, pigs, horses and marine mammals
- Type B
  Infects only humans
- Type C
  Infects only humans and results in very mild disease

What causes new viruses?

- Viruses are not stable
- Gradual genetic drifts and changes
- Two viruses infecting the same cell may swap large pieces of genetic material and create entirely new virus
- Lack of previous immunity may result in disease, mortality and pandemic

What is a pandemic?

- World wide outbreak
- 1918 Spanish Flu 50M World
- 1957-58 Asian Flu 70K US
- 1968-69 Hong Kong Flu 34K US

What is HPAI H5N1?

- Type A
- Highly Pathogenic Avian Influenza
- Surface proteins labeled H5N1
- First appeared in 1997
- Caused outbreaks in SE Asia / China
- Now expanded to Middle East, Europe and Africa
- Ability to infect humans (101 deaths)
- No sustained human to human transmission yet
- Remains disease of domestic birds and wildlife

What steps are being taken to prepare?

- Federal government planning
- Director, NPS and NLC have directed Public Health, Wildlife Health and Risk Management to prepare plans and provide assistance
- Joint effort to monitor migratory birds coming from Asia to Alaska

Why Investigate Avian Mortality Events?

Notes

What If This Happened to You?

You receive a call from a staff member at the visitor's center. They tell you that a visitor reported seeing a dead duck near a pond that is a popular wildlife viewing site. No other information is available at this time. What would you do?

Why mortality surveillance?

- Ideally it is routinely done
- Determine nature and cause of disease
- Assess significance
- Identify prevention and control methods
- Determine risk to humans and domestic animals

Why the emphasis now?

- HPAI H5N1 poses significant threat to domestic birds and possibly humans
- Opportunity to gain information on variety of mortality causes
- Add to our knowledge base about wildlife diseases

How do we prioritize?

- Priorities may vary with location
- Identify unusual mortality events
- Monitor priority species

What is unusual?

- "Deaths you are not used to seeing."
- Consider past mortality history
- Talk with colleagues
- Consult with regional or WASO personnel

Why Investigate Avian Mortality Events? (cont.)

Notes

Are there red flags?

- Birds migrating to Alaska from Asia
- List of high risk species
- Swans
- Alaska and Hawaii are the most likely locations to first detect HPAI H5N1

What Steps Will Prepare You for Avian Mortality Surveillance?

How do we prepare?

- Determine who is responsible
- Communicate point of contact information to all staff
- Timely communication will be critical
- Get proper training BEFORE handling dead animals

What equipment do we need?

- Coolers or sample shipping boxes
- Packing material and ice packs
- Permanent markers and tape
- Carcass bags (AKA trash bags)
- Carcass tags
- History and submission forms
- Personal protective equipment (PPE)

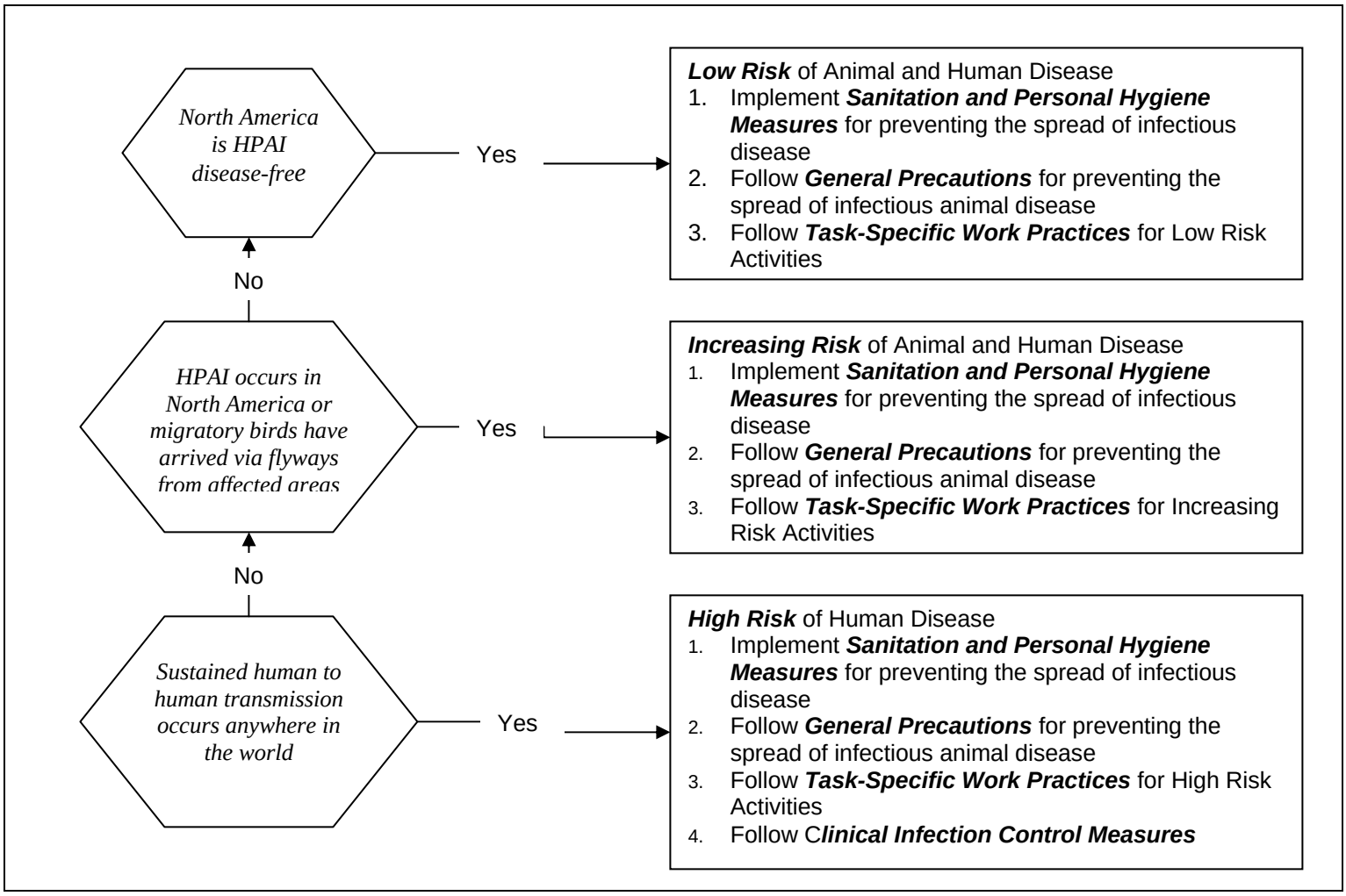
What information should we gather ahead of time?

- Shipping options –
  - FedEx overnight
  - Account number
- Permits
  - FWS and NEPA
- Selecting a lab

Remember the Dead Duck?

Was that an unusual mortality event? Why or why not?

What PPE Should Be Worn and What Work Practices Followed When Collecting Samples?



See Appendices A-C
PPE and Work Practices for Low Risk, Increasing Risk and High Risk Activities

What About the Dead Duck?

You decide that you are going out to collect the dead duck that was reported by a visitor. What PPE would be appropriate for you to wear and what work practices should you follow to reduce your risk of exposure to disease?

What Information Should Be Included on a Specimen History Form?

Notes

See Specimen History Form at back of participant's guide

Location
- Specific site
- County
- State
- Latitude/Longitude
    - GPS Coordinates
    - Tshp Rng Sctn

Environmental Factors

Problem Area Description

The Outbreak
- Disease onset
- Species affected
- Age/sex
- Morbidity/mortality
- Known dead
- Known sick
- Estimated dead

Clinical signs – Abnormal behavior or appearance

Population Movements

Supplements

ANYTHING else that might help!
- Past disease occurrences there or nearby
- Recent changes in land use
- Construction/destruction
- Livestock facilities, disease outbreaks
- Reports from public

How Do You Prepare a Specimen for Shipment to a Lab?

Specimen selection

Chill or Freeze?

- Dead and Shipped within 24-36 hrs: CHILL!!!!
- Dead >36 hours or delay in shipping, etc: FREEZE!

Call the Lab 1-608-270-2400

- Submitter
- Affiliation
- Address
- Telephone
- E-mail

Ship Overnight

- Fed Ex has the best record
- UPS
- USPS
- TRACKING NUMBER

What Steps Does a Lab Take to Determine Mortality Causes?

Notes

BSL-3 Necropsy Suite

Diagnostic Laboratories

Results Reporting

- Necropsy findings and diagnostic test submissions relayed by phone or e-mail within 24-36 hrs of necropsy
- Test results relayed as available and appropriate

What Actions Should Be Taken While Waiting for Lab Results?

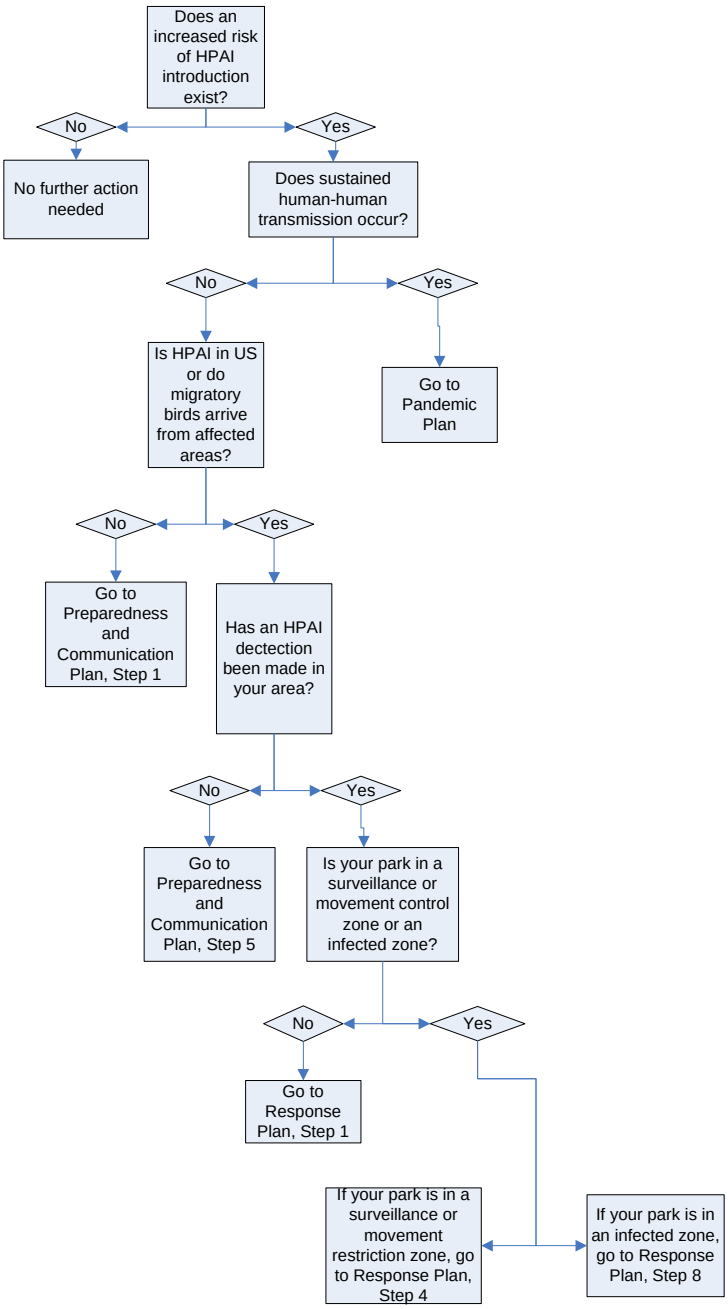
Notes

Action	
Event investigation	• Document mortality event (e.g., location, species, age class, numbers). • Maintain surveillance of site. • Collect carcasses and implement biosafety measures. • Assess need for involvement of a wildlife disease investigation team.
Consultation with regional and national programs	• Wildlife health • Public health • Risk management • Public affairs • Directorate (based on assess of risk)

Communication	• Press release
	• Contact:
	  • State wildlife management agency
	  • State veterinarian's office
	  • State department of health
	  • USDA APHIS

Human safety	• Limit visitation to affected area. • Assess employee health risk and implement necessary actions.

What Are the Key Elements of a Preparedness and Response Plan?



To Receive Course Credit

1. PRINT your name on the attendance roster.

2. Go to the workshop homepage at http://www.govlearning.net/nps/AvianMortality and click on the link at the bottom to submit a course evaluation.

Instructors

NPS Industrial Hygenist
CAPT David Bleicher
David_P_Bleicher@partner.nps.gov
202.513.7224

NPS Public Health Service Program
CAPT Charles Higgins
Charles_Higgins@nps.gov
202.513.7217

NPS Wildlife Veterinarian
Margaret A. Wild, DVM, PhD
Margaret_Wild@nps.gov
970.225.3593

USGS Wildlife Disease Specialist
Grace S. McLaughlin, Ph.D.
gmclaughlin@usgs.gov
608.270.2446
gmclaughlin@usgs.gov

Appendix A: PPE and Work Practices for Low Risk Activities

Low Risk Activities. HPAI is not known to occur in North America.			
While absence of HPAI in North America suggests a low risk, the following recommendations should be followed for use of personal protective clothing which provides barriers and isolates the worker from possible sources of disease causing organisms in general and safe work practices which emphasize hygiene and sanitation.			
If I am a…	…and my activities require me to…	…I should wear this Personal Protective Ensemble (PPE)…	…and follow these Safe Work Practices…
Hunter or ***Subsistence User***	handle and prepare game	• Rubber, pvc, nitrile, or latex gloves. Reusable gloves must be disinfected after use. • Goggles or a face shield is recommended while processing game.	• Do not handle or eat sick game. • Wash hands after handling animals • Thoroughly clean and disinfect knives, equipment, work surfaces and PPE that come in contact with game. • Cook game well done or to an internal temperature of at least 160° F).
Biologist or ***Ranger***	handle apparently healthy wild birds	• Rubber, pvc, nitrile, or latex gloves.	• Work in well-ventilated areas if working indoors. • Disinfect work surfaces and equipment between sites and when tasks are complete. • Wash hands after handling animals
Biologist or ***Ranger***	handle sick or dead birds or tissue associated with an unusual mortality event	• Rubber, pvc, nitrile, or latex gloves. • Goggles • NIOSH approved particulate respirator, N95 or better. • Coveralls, • Rubber boots or boot covers	• Work in well-ventilated areas if working indoors. • Disinfect work surfaces and equipment between sites and when tasks are complete. • Properly dispose of potentially infectious material including carcasses. • Wash hands after handling animals

Appendix B: PPE and Work Practices for Increasing Risk Activities

Increasing Risk Activities. HPAI occurs in North America or migratory birds have arrived via flyways from affected areas or work with wild birds in areas where HPAI has been detected.			
Once HPAI occurs in North America or migratory birds have arrived via flyways from affected areas or you work with wild birds in areas where HPAI has been detected, your risk of exposure will increase and consequently, you must increase your protections.			
If I am a…	…and my activities require me to…	…I should wear this Personal Protective Ensemble (PPE)…	…and follow these Safe Work Practices…
Hunter or ***Subsistence User***	handle and prepare game	• Rubber, pvc, nitrile, or latex gloves. Reusable gloves must be disinfected after use. • Goggles or a face shield is recommended while processing game.	• Do not handle or eat sick game. • Wash hands after handling animals • Thoroughly clean and disinfect knives, equipment, work surfaces and PPE that come in contact with game. • Cook game well done or to an internal temperature of at least 160° F).
Biologist or ***Ranger***	handle apparently healthy wild birds	• Rubber, pvc, nitrile, or latex gloves.	• Work outdoors or in well-ventilated areas if working indoors. • Disinfect work surfaces and equipment between sites and when tasks are complete. • wash hands after handling animals
Biologist or ***Ranger***	handle sick or dead birds or tissue associated with an unusual mortality event	• Rubber, pvc, nitrile, or latex gloves. • Goggles • NIOSH approved particulate respirator, N95 or better. • Coveralls, • Rubber boots or boot covers	• Work outdoors or in well-ventilated areas if working indoors. • Disinfect work surfaces and equipment between sites and when tasks are complete. • Properly dispose of potentially infectious tissues and carcasses. • Wash hands after handling animals • obtain vaccination for seasonal influenza • Monitor your health for clinical signs of influenza infection during and for one week after your last exposure to potentially HPAI virus-infected or exposed birds. • Contact your healthcare provider if you develop fever, flu-like symptoms or conjunctivitis and inform them prior to arrival that you have potentially been exposed to HPAI.

Appendix B: PPE and Work Practices for Increasing Risk Activities (cont.)

Increasing Risk Activities. HPAI occurs in North America or migratory birds have arrived via flyways from affected areas or work with wild birds in areas where HPAI has been detected.			
If I am a…	…and my activities require me to…	…I should wear this Personal Protective Ensemble (PPE)…	…and follow these Safe Work Practices…
Biologist, Public Health Officer, or ***other employee*** working with agricultural, public health or similar authority	participate in animal disease control operations	• Rubber, pvc, nitrile, or latex gloves. • Goggles • NIOSH approved particulate respirator, N95 or better • Coveralls • Rubber boots or boot covers	• Work outdoors or in well-ventilated areas if working indoors. • Disinfect work surfaces and equipment between sites and when tasks are complete. • Properly dispose of potentially infectious tissues and carcasses. • Wash hands after handling animals • Obtain vaccination for seasonal influenza. • Receive an influenza antiviral drug daily for the duration of time during which direct contact with infected poultry or contaminated surfaces occurs. • Monitor your health for clinical signs of influenza infection during and for one week after your last exposure to potentially HPAI virus-infected or exposed birds. • Contact your healthcare provider if you develop fever, flu-like symptoms or conjunctivitis and inform them prior to arrival that you have potentially been exposed to HPAI.

Appendix C: PPE and Work Practices for High Risk Activities

High Risk Activities. Sustained human to human transmission of HPAI occurs anywhere in the world.			
If sustained human to human transition occurs, our strategy of maintaining barriers and isolating ourselves from sources of infection and decreasing exposure potential through sanitation and hygiene will continue, but with emphasis on human to human rather than animal to human contact. Specific PPE and work practices for employees at high risk, such as emergency service providers, must be followed.			
If I am a…	…and…	…I should wear this Personal Protective Ensemble (PPE)…	…and follow these Safe Work Practices…
Emergency Services Provider or ***Law Enforcement Ranger***	Have close contact with symptomatic and asymptomatic public suspected HPAI infection	• NIOSH approved particulate respirator, N95 or better • Use gloves and gown for all patient contact. • Goggles of face shields	• During periods of increased respiratory infection activity in the community offer masks to persons who are coughing. • When space permits, encourage coughing persons to sit at least three feet away from others.
Emergency Medical Services Provider, ***medical clinician***, or Emergency Services Provider	Attend to or transport patients who present with fever and respiratory symptoms	• NIOSH approved particulate respirator, N95 or better • Use gloves and gown for all patient contact. • Goggles of face shields • Use dedicated equipment such as stethoscopes, disposable blood pressure cuffs, disposable thermometers, etc.	• Manage patients according to recommendations for Respiratory Hygiene and Cough Etiquette and question regarding their recent travel history. • Patients with a history of travel within 10 days to a country with avian influenza activity and are hospitalized with a severe febrile respiratory illness, or are otherwise under evaluation for avian influenza, should be managed using isolation precautions. • Practice **Standard Precautions.** Pay careful attention to hand hygiene before and after all patient contact or contact with items potentially contaminated with respiratory secretions. • Practice **Droplet, Contac**t and **Airborne Precautions**.

National Wildlife Health Center
6006 Schroeder Road
Madison, WI 53711
Phone: 608.270.2400
FAX: 608.270.2415

SPECIMEN HISTORY FORM

Please FAX to USGS before shipping specimens. Also please call your Field Investigation Team member.

Submitter's name: Affiliation:

Address: Telephone:
E-mail:

Date collected: Collector's Name:

Method of collection: [found dead, euthanized (describe method) etc.]

Species and Number Submitted:

Specific die-off location:

State: County: Latitude/longitude:

Environmental factors: (Record conditions such as storms, precipitation, temperature changes, or other changes that may contribute to stress.)

Disease onset: (The best estimate of when the outbreak started.)

Species affected: (The diversity of species affected may provide clues to the disease involved.)

Age/sex: (Any selective mortality related to age and sex?)

Morbidity/mortality: (Ratio of sick animals to dead animals.)

Known dead: (Actual pickup figures.) Known sick:

Estimated dead: (Consider removal by scavengers or other means.)

Clinical signs: (Any unusual behavior and physical appearance.)

Population at risk: (Number of animals in the area that could be exposed to the disease.)

Population movement: (Recent changes in the number of animals on the area and their source or destination, if known.)

Problem area description: (Land use, habitat types, and other distinctive features.)

Comments: (Additional information/observations that may be of value such as past occurrences of disease in area.)

PLEASE USE ADDITIONAL SHEETS AS NECESSARY.